The Experience of UK Technology Transfer Offices.

28th November 2012

Andrew Walsh, Manager, Healthcare
Cambridge Enterprise Limited, University of Cambridge
The Role of a Universities in the UK

Mission

• The mission of the University of Cambridge is to contribute to society through the pursuit of education, learning, and research at the highest international levels of excellence.

Core values

The University's core values are as follows:
• freedom of thought and expression
• freedom from discrimination
The Role of a University in the UK

UK higher education is large scale enterprise.

115 Universities

Income £27 Billion

2.5 Million Students

589,000 Postgraduate Students

381,790 Staff
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The University's relationship with society

• the widest possible student access to the University
• the contribution which the University can make to society through the pursuit, dissemination, and application of knowledge
• the place of the University within the broader academic and local community
• opportunities for innovative partnerships with business, charitable foundations, and healthcare
• concern for sustainability and the relationship with the environment
University generated ideas are important!

Insulin
University of Toronto
Banting and Best
University generated ideas are important!

Monoclonal Antibodies
MRC LMB
Milstein and Köhler
University generated ideas are important!

Jet Engine – Cambridge
Frank Whittle
University generated ideas are important!

- Pacemaker
- Ultrasound Imaging
- Polio Vaccine
- Streptomycin
- Electronic Computer
- Seat Belt
- Gatorade
University generated ideas are important!

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<th>Pacemaker</th>
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- MRI
- Recombinant DNA
- Factor IX gene
- Taxol
- Rocket Fuel
- Vitamin D in food
- Breathalyser
- Electron
- Microscope
- Blood Preservation
- Warfarin
University generated ideas are important!

Penicilin
St. Mary’s London and Oxford
Fleming, Florey and Chain
Risk, Money and Time
Risk, Money and Time

Time

Risk

Cost
Risk, Money and Time

![Graph showing the relationship between Risk, Money, and Time]

- **Cost** decreases over time until it reaches a minimum, then increases indefinitely.
- **Risk** increases over time, starting from a lower level and continuing to rise indefinitely.

The graph illustrates how Risk and Cost change over time, with Risk increasing while Cost decreases initially but then increases indefinitely.
University generated ideas are important......

But turning them into real benefits for society is EXPENSIVE and RISKY!
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Vital role for the commercial sector
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Vital role for the commercial sector

The activities of a university technology transfer office are focused on the REDUCTION OF RISK! to facilitate the uptake of these technologies
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Vital role for the commercial sector

The activities of a university technology transfer office are focused on the REDUCTION OF RISK! to facilitate the uptake of these technologies

Generally fall into three areas;
• Intellectual property and licensing
• New company formation
• Consultancy services
“Cambridge Enterprise exists to help University of Cambridge inventors, innovators and entrepreneurs make their ideas and concepts more commercially successful for the benefit of society, the UK economy, the inventors and the University”
Cambridge Enterprise Group

1. Technology Transfer Services
   - Licensing Transactions
   - With Existing Companies

2. Consultancy Services
   - Consultancy Contract Transactions
   - With Existing Companies

3. Seed Fund Venture Services
   - Finance & Operations
   - Business Support
   - Marketing
   - Equity Transactions
   - With New Companies
Alternative Structures for Technology Transfer In Cambridge

- Technology Transfer Office within Research Services Division 2000-2004
- Cambridge Enterprise within the University 2004
- Cambridge Enterprise Ltd. 2006
Technology Transfer

Key role – Identification and development of technologies with potential commercial value and impact on society.
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• Services include invention disclosure management; patent strategy, filing and maintenance; proof of concept funding; research reagents transfer; intellectual property licensing and contract management; income distribution and bespoke marketing.
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• INTELLECTUAL PROPERTY RIGHTS ABOSULTELY KEY TO REDUCE RISK!!

• Backed by a clear University Intellectual Property Policy

• Generous rewards to inventors

• Use all the available IP rights available for the technology
“Proof of Concept” work increasingly important

Moves the technology along the development pathway = REDUCE RISK

• Will use own funds (patent budget)
• Will support applications for outside translational research funding
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Can be used for;
- Further experiments
- Market analysis
- Animal work
- Prototype building
• Subject to any funding agreements with research sponsors:
  • Researcher decides if they wish to commercialise their work
  • If the Researcher decides to commercialise their work this must be disclosed to the University which has the right to apply for registerable intellectual property rights (e.g. patents)
• Students own IP they create on their own only and when they are the sole inventor and there is no obligation to a sponsor
• Provides an option for inventors to commercialise IP independently of the University, subject to funding terms
• Provides for a generous revenue sharing scheme so that researchers share in the benefits of commercial success.
Cambridge Enterprise Seed Funds

Key Role – Investment in early stage companies that are closely linked to the University
Cambridge Enterprise Seed Funds

Key Role – Investment in early stage companies that are closely linked to the University

- Provide seed investment
- Facilitate specialist advice
- Introduce the financial community
- Help build the team
- Help run the companies
- Find co- or follow on investors
Why universities are involved in spin-outs

• Forming a company is the most efficient and effective way of achieving successful dissemination/commercial exploitation of a discovery

• Bring the technology up to a commercial standard.

• Support local/regional/national economic development

• Expectations set by policy makers and funders

• Potential (modest) returns through royalties and equity realisations which can be used to support programmes and seed new ideas

• Early stage funding REDUCES RISK for other investors
Cambridge Enterprise Seed Funds manages three evergreen funds, with all realisations returned to the funds for reinvestment:

- **University of Cambridge Discovery Fund**
  - Established 2008
  - Target fund size £5 million
  - £1.6 million donated to date and available for investment

- **University Challenge Fund**
  - Established 2000
  - Fund size £4 million
  - Fully invested with realisations available for reinvestment

- **University Venture Fund**
  - Established 1995
  - Fund size £2.4 million
  - Fully invested with realisations available for reinvestment
Cambridge Enterprise Seed Funds

During the period 1995 to year ending 31 July 2011, the University funds*:

- **Made 69 investments**, of which 66 were in new technology companies and 3 were in other early stage technology funds

- Portfolio companies have raised **over £670 million in follow-on funding and grant awards**, representing **a leverage of 78 times** the University investment

During the last financial year:

- **32 of the 69 investee companies*** have transferred technology from the University for public or business use via product sales or licensing and collectively **employ over 3800 people**

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* University funds and portfolio companies refer to investments for the University of Cambridge Discovery Fund, University Venture Fund and Challenge Fund Trading Company Limited only and not the investment of technology transfer intellectual property for equity.
Consultancy

Key role - Supporting the provision of expert advice to external clients by University personnel

“Consultancy is one of the simplest ways for business to interact with universities and draw on their research...In particular increasing consultancy may be one way to bring more companies into contact with universities”

(Lambert Report, 2004)
Consultancy – University of Cambridge Policy

Academics may consult through 2 mechanisms:

<table>
<thead>
<tr>
<th>CUTS</th>
<th>PRIVATE</th>
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<tr>
<td>Profession contract negotiation and fee collection supported by legal and insurance services</td>
<td></td>
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<tr>
<td>Cover from University’s professional indemnity and liability insurance</td>
<td>Private insurance cover for a min of 6 years after contract completed</td>
</tr>
<tr>
<td>Use UoC address and affiliation</td>
<td>Home address and use of personal letterhead</td>
</tr>
<tr>
<td>Use of UoC facilities (FEC costing)</td>
<td></td>
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<tr>
<td>Time commitment a matter for individual and their Head of Department</td>
<td>University staff performing work in a private capacity do so entirely at their own risk and must make a clear distinction between private work and their University duties</td>
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Consultancy

CE Subsidiary Cambridge University Technical Services Limited (CUTS) provides:

- Dedicated personnel
- Support from CE, University LSO and Insurance Section of Finance Division
- Negotiation of fees (costing and pricing), terms, conditions and contract
- Administrative, invoicing and accountancy services
- Indemnity and personal cover for staff and students (provided a PI is responsible)
- A managed service for both consultants and clients (CUTS management fee included in the price of the contract and paid by the client)
Cambridge Enterprise Group Performance 2010/11

- 154 new IP disclosures received
- 168 patent applications filed
- 116 IP transactions signed: 85 for commercial purposes and 31 for other purposes, including research licences
- 695 active IP and licence agreements under management including 202 research licences
- 232 consultancy disclosures received (new consultancy projects)
- 183 consultancy agreements signed
- 6 companies contributing new equity to the portfolio
- 68 companies in which Cambridge Enterprise holds equity
- Equity realisations of £1.04 million were received
- £10.2 million in knowledge and technology transfer income including equity realisations from licensing
- £8.4 million of knowledge and technology transfer income was or will be returned to academics and University departments
Group income 2005/06 – 2010/11

All amounts are gross


- Exceptional consultancy income
- Exceptional licence income
- Equity realisations (Seed Funds)
- Equity realisations (licence)
- Ordinary consultancy income
- Ordinary licence income
Sources for 2010/11 group operating costs

Sources for 2010/11 operating costs (including investment in patent assets)

- Margin contribution from consultancy & licensing services - ordinary
- Margin contribution from consultancy & licensing services - exceptional
- Margin contribution from equity realisations
- Grant funding
- University funding for services
- Fees for fund management
- Other income
What about UK Technology Transfer as Whole?

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<th>US universities AUTM survey</th>
<th>UK HEIs Finance/HE-BCI survey</th>
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<tr>
<td>Total research resource (£M)</td>
<td>33,849</td>
<td>6,364</td>
</tr>
<tr>
<td>IP income including sales of shares in spin-offs (£M)</td>
<td>1,142</td>
<td>69</td>
</tr>
<tr>
<td>IP income as percentage of total research resource</td>
<td>3.4%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Spin-off companies formed</td>
<td>606</td>
<td>268</td>
</tr>
<tr>
<td>Research resource per spin-off (£M)</td>
<td>56</td>
<td>24</td>
</tr>
<tr>
<td>Patents granted</td>
<td>3,968</td>
<td>757</td>
</tr>
<tr>
<td>Research resource per patent (£M)</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Industrial contribution (£M)</td>
<td>2,433</td>
<td>432</td>
</tr>
<tr>
<td>% industrial research</td>
<td>7.2%</td>
<td>6.8%</td>
</tr>
<tr>
<td>US cashed-in equity/UK Sale of spin-off shares (£M)</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>(Cashed-in equity/sale of spin-off shares) as a % total research resource</td>
<td>0.07%</td>
<td>0.13%</td>
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Looking Forward - New Initiatives

**New Investment fund of >£30 Million**

Reduces risk by ensuring the presence of significant funding for suitable opportunities at “A” round

Provides the opportunity for better financial returns on our seed funding

**New Licensing Fund**

Provides investment into single therapeutic or medical device projects

Reduces risk by moving these projects further down the development pathway
Looking Forward – New Initiatives

Stevenage Biocatalyst Centre on the GSK site

- University projects can be located in rented space
- Fully equipped
- Access to GSK expertise and facilities
- GSK have no rights to project outcomes
Conclusion and thank you